Surface properties of two closely related sugar esters: glucose octanoate and octyl glucuronate

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Abstract

The surface properties of two closely related sugar esters, glucose octanoate and octyl glucuronate, are compared. Adsorption kinetic, interfacial viscoelasticity, critical micellar concentration (CMC), excess concentration and molecule area are presented for both surfactants.

The results clearly indicate that the ester bond position influences the extent and rate of interfacial adsorption and has implication on the surfactant performance. Octyl glucuronate exhibits a faster rate of adsorption at the air-water interface and a lower critical micellar concentration. Glucose octanoate presents higher viscoelasticity and elasticity moduli. These various interfacial properties derive from difference in the structure and the hydrophobic/hydrophilic nature of both sugar esters.